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ABSTRACT

This article discusses the Cognitive Enrichment Network Model (COGNET) of elementary school instruction developed at the University of Tennessee at Knoxville. This model is largely based on the theory of mediated learning experience (MLE) developed by Israeli psychologist Reuven Feuerstein, which posits that learning is closely connected to cultural values and that children who feel culturally alienated often have a difficult time learning. The COGNET model focuses children's attention on the connections between school learning and their world view. The model is unique because of: (1) its mediated approach to connecting school learning to the real world; (2) the fundamental methods for learning that are taught to children; and (3) the enabling way in which assistance is provided. Using teaching methods based on a model of 10 "building blocks of thinking" and 8 "tools of independent learning," the COGNET program instills in children the desire and ability to learn how to learn. The program has been used in schools in Tennessee, Montana, Michigan, and Washington, and by educators in Belgium and Holland. Studies indicate that low-income children enrolled in the COGNET program for several years show significant improvement in math and reading compared to similar children who are not in the program. (MDM)

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COGNITIVE ENRICHMENT NETWORK OVERVIEW

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THE COGNITIVE ENRICHMENT NETWORK

COGNET

Six year old Darin was called out of class by the counselor. Darin's behavior problems in the classroom were increasing and his teacher was getting concerned. Instead of looking confused when the counselor asked if he knew what was causing his problems, Darin replied in a matter of fact way, "Yes, Self Regulation." The counselor was amazed. She was new to Darin's school and was not familiar with the COGNET program. After regaining composure, she asked Darin, "Do you really know what Self Regulation means?" Darin's face broke into a big smile as he responded, "Of course! It means taking control of your thoughts and actions."

According to Dr. Katherine H. Greenberg, founder and director of the Cognitive Enrichment Network Model, Darin was demonstrating an important first step in the process of becoming an independent learner: he identified the problem in a way that shows he understands his role in learning and how to be in control of that process. Because Darin is in the COGNET program, he is learning how to learn in the very situations where he needs help to progress. He can tackle problems regarding appropriate behavior outside as well as inside the classroom, learn something new in reading, or work effectively in a cooperative learning group on a child selected project.

COGNET children do not see school as a place to learn skills required for some isolated school task--but a place to learn skills needed in the real world. They relax as they find that success and failure are not dependent on luck but rather on how one goes about thinking and doing. Learning problems become opportunities for learning how to learn. Children see the classroom as a laboratory where problems are supposed to occur--and where one can expect to find solutions.

COGNET classrooms are laboratories for learning, not stages for presenting right answers. This emphasis allows children to learn in naturally occurring ways: by exploring new ideas with assistance and independently. It also allows children to connect new ideas to the world they already know. Most developmentally appropriate curriculum is similar to COGNET in these ways. What makes the COGNET model unique is (1) its mediated approach to connecting school learning to the real world, (2) the fundamental methods taught to children about how to learn, and (3) the enabling way in which assistance is provided--all structured by the theory of Mediated Learning Experience (MLE) upon which COGNET is based.

COGNET's Connection between School Learning and the Real World

The importance of connecting school learning to the real world is very much like the happenings in a science laboratory. When scientists go to work in a laboratory, they bring with them what they already know and have woven into a story or theory of causes and effects in the world. They use this theory to tell them what variables are relevant and irrelevant as they explore new ideas and relationships. If their methods of exploring are effective, then their findings will be useful for improving their theory. Through this process, the scientist builds a spiral of learning that results in ever increasing success in understanding the world.

All children enter the classroom with a story of how the world works. They use their personal theories to assign relevance to the new information which surrounds them. If children come from mainstream culture homes, they will be able to make many

connections between school and their real world. For example, these children will see relevance in having a place and time for doing certain activities. They will observe that teachers, like mothers, expect you to follow specific rules. However, if children come from non-mainstream homes, they may not find any relevance in doing certain activities according to mainstream school ways. As a result, their stories of the world may become confused, alienation is increased, and school often becomes an unsuccessful experience.

The COGNET approach focuses children's attention directly on the connections between school learning and the real world. No assumptions are made about the real world theory brought to school by a given child. Instead, the relevance and importance of curricular activities are carefully discussed. Connections are made to each child's world view concerning the differences and similarities with the culture of school. Perhaps most important in COGNET, however, are the connections made to methods for learning.

COGNET Methods for Learning: Building Blocks and Tools

Essential to any successful laboratory for learning are the methods used when exploring and connecting new ideas. In COGNET these methods are called Building Blocks of Thinking and Tools of Independent Learning. All of them are fundamental to learning. Together they focus on thinking and feeling factors and help determine how effective learning is in a given situation. One first grader in a COGNET classroom shared the following method she used to make friends:

Juanita pulled her teacher aside on the playground. "Mrs. Jones, guess what? I used Approach to Task (one of COGNET's Building Blocks of Thinking) to make a new friend. First, I watched the girls in our class who have lots of friends. They all had their hair cut like Shannon's. So, I made a plan to ask my mom if I could get that hair cut. She let me, but it didn't work. So, I looked around our class and found that friends help each other. So, I made a plan to help another child. Yesterday, Aaron had big trouble with his math and I asked if I could stay in at recess and help him. And now he is my friend!"

Juanita's story demonstrates her ability to carefully implement a method for exploring a theory. She reached an even higher level of learning by changing her theory when the first plan did not work. The fact that a child of six can express such a high level of thinking and learning is a common experience for those using the COGNET model. They have observed Head Start children of three and four solving personally relevant problems in similar ways.

In COGNET, children gain insight into the need for the 10 Building Blocks of Thinking and eight Tools of Independent Learning in personally relevant situations. When children enter the COGNET program, the Building Blocks and Tools are introduced during learning activities selected by the teacher. The teacher explains how a specific Building Block or Tool can help one learn more effectively in the given situation. Then, with the help of the teacher, children think of an "if..., then...." statement or principle which discusses the cause and effect of the Building Block or Tool when used in any situation. For example, in the case of Juanita, a useful principle is as follows: "If you change your Approach to Task when it is not successful, then you can solve your problem."

Once an acceptable principle is stated, children bridge to other activities in school, home, work and social settings. Through the "bridging" technique, children like Juanita transfer methods for learning to all parts of their world. As a result, they learn effectively at an independent level.

COGNET teachers claim that the best learning situations, those where children gain the most confidence about the usefulness of the Building Blocks and Tools, involve cooperative learning activities and the integrative use of computers in the classroom. The cooperative learning activities provide a structure for integrating software into the curriculum. COGNET's experienced staff continuously update a list of the best software for this purpose. As children work together at the computer, interaction is encouraged and technological skills are acquired easily--and as needed.

COGNET's cooperative learning and integrative use of computers in the classroom expert, Lois Symington, was utilizing these two instructional approaches before she became involved with COGNET. She states, "Combining the COGNET basic approach with cooperative learning and computers works magic in the classroom. COGNET provides essential methods for learning that dramatically enhance the proven success of cooperative learning. Carefully selected software simulates real life situations under controlled conditions. This makes it possible for the children to gain important insight into the need for Building Blocks and Tools that is not as clear in isolated lessons. In turn, cooperative learning provides children with an understanding of how to interact effectively with one another. It is exciting to watch children have that 'ah ha!' experience when these three approaches are combined. And, too, it is thrilling to see children assist each other in appropriate ways."

Lois Symington, M.S.
COGNET Computer & Cooperative Learning Consultant

COGNET's Approach to Providing Assistance in Learning

A child troubled by a learning problem in a COGNET school expects to receive help from adults and other children in the classroom. This help is not to take over the child's processing of information. It is meant to provide him or her with insight into what can be done to think more carefully about the problem. The assistance also works to help the child replace negative feelings that interfere with learning with positive feelings which increase motivation and joy in learning.

As children develop skills in cooperative learning, they are able to offer support to one another without taking over for a child having difficulty. Whenever the need exists to overcome some problem, COGNET children focus on learning how to learn and see immediately the success that comes from systematically gathering all the information or making sure you have a precise understanding.

We can observe COGNET's approach to providing assistance to children through the Vonda Jones' interaction with Chris:

Chris could not talk as well as other children his age. He was slow at learning new words and the ideas behind them. Vonda, a teaching assistant and excellent mediator, never took over in learning situations for Chris. In one situation, Vonda was helping Chris make a necklace by stringing a blue pendant on a piece of yarn. Rather than tell Chris what to do, she asked him to tell her his plan for making the necklace. He needed to state how long the piece of yarn should be, how to cut it, how to thread the pendant, and how to tie a knot so the necklace would stay around his neck. She encouraged Chris to use the language he had and helped him use less familiar words. When Chris had difficulty cutting the yarn, Vonda did not take the scissors from him. Instead, she asked if she could help--first by holding the yarn and later by cutting while he held the yarn. Even when Vonda made suggestions, Chris remained in control of the learning situation by deciding whether her assistance

would help him be successful. Vonda explains that the COGNET training taught her how to take children beyond the immediate needs in a learning experience. COGNET taught her how to help children find ways to solve problems without expecting adults to take over for them.

Vonda Jones
Head Start Teaching Assistant

By drawing on the COGNET methods for learning, children are often able to proceed with only minimal assistance. Suggestions to "make a plan and try again," or "think about what you learned yesterday" are often sufficient. The COGNET approach to providing assistance is the pivotal point of the model. As the belief system underlying COGNET suggests, children make progress in learning how to learn at the place where they need assistance.

The Theory of Mediated Learning Experience

As with all successful education models, COGNET relies on a belief system based on a valid theory. Without a theory underlying a given model, all aspects of the approach are a shot in the dark. In the case of COGNET, the theory of Mediated Learning Experience (MLE) provides direction and answers many questions related to improving school success for at-risk children.

According to Reuven Feuerstein, Israeli psychologist and developer of the theory, MLE is essential to cognitive development. Although children learn about the world through independent interaction with it, they will not learn how to learn if MLE is inadequate. Most children receive MLE from the time of birth due to their mother's need to transmit her values and world theory. However, the quality and quantity of MLE often diminishes for those who feel culturally alienated as disconnected families or for those under great stress. Because, MLE is so closely tied to cultural

values, it is helpful to view it through examples from non-mainstream culture groups. The following example was shared by Larry Emerson, a Navajo colleague of Dr. Greenberg's:

A traditional Navajo grandparent decides one morning to teach her grandchildren how to make a basket. She helps the children discriminate among plants and to choose the appropriate yucca plant. Then, over perhaps 12 days, she teaches the children how to shred the yucca plant into strips, how to bend the strips into place, how to follow the traditional rules for coiling and making the design of the basket. As she teaches, she questions the child about the rules for basket making, pointing out that the reasons behind the rules relate directly to Navajo beliefs about the world and one's connectedness to it. As the grandparent guides the interaction, MLE occurs. As a result, the children gain a new level of understanding and acquire a need to find traditional meaning in their world.

Larry Emerson
MLE Consultant

The example demonstrates a high level of naturally occurring MLE. However, if this mediation is based on a world view different from that at school, children may be hindered as they blindly attempt to accommodate the theory of the world of school with the theory of their native culture. In other situations, when parents and grandparents lose touch with a traditional world view and do not acquire a mainstream one, they have little need to provide the quality of MLE needed for children to become effective learners when they enter school. These children respond to school even less as teachers expect and alienation often occurs.

Feuerstein has spent more than 30 years observing the effects of lack of MLE on culturally alienated groups of children and adolescents and others with handicapping conditions. Through this work, he has been able to identify the essential variables of learning how to learn. Today, countless studies have been

completed around the world related to applications of the theory of MLE. Katherine Greenberg developed COGNET after working closely with Feuerstein while completing a nine month sabbatical as a Fulbright Research Scholar at the institute in Israel.

Essentially, COGNET provides **focused MLE** by providing children with a clear understanding of the variables essential to independent learning. These variables are understood only indirectly through naturally occurring MLE. Consequently, the program helps all children become better learners, including those who received a sufficient quality of natural MLE.

The power of MLE is so great that time and careful effort are needed to gain the knowledge needed to implement the model effectively--and for children to gain an understanding of how to learn. For these reasons, the concept of networking is central to COGNET.

The Value of Networking

The network aspect of COGNET includes a dynamic partnership among sponsor staff at The University of Tennessee, Knoxville, and educators and parents in communities where the model is implemented. Some of these communities include White Pine, Knoxville and Chattanooga, Tennessee; Ronan, Montana on the Flathead Indian Reservation; Detroit, Michigan; Seattle, Washington and an impressive number of international educators in Belgium, Holland and soon in Brazil and Canada.

COGNET as all Follow Through models, works to serve the needs of the whole child. Health and social services to children and their families are vital to the success of the program. At the

same time, every effort is made to form linkages between the Head Start center and the school so that services are continued throughout the early childhood years. Many children have obtained badly needed glasses, dental work, medical attention for chronic ear infections and counseling.

In the White Pine, Tennessee community a most valuable linkage occurred when the Head Start teacher serving the school became the Parent Trainer. Her credibility with parents enhanced the linkages between parents and the school. The challenge of the program is in building trust and enthusiasm, says parent trainer Janice Wilder. "If you can get a parent to believe you when you say, 'Look, this is really going to work with your child,' they'll try your suggestions. And once they see how well the ideas work, there's no way they're going to stop. No way."

Among other parent involvement activities, COGNET regularly provides 20 hours of parent training related directly to the Building Blocks of Thinking and the Tools of Independent Learning and how to use them in the home. In this way, the network supporting children's learning how to learn is strengthened tremendously. As parents discuss the need for Building Blocks and Tools in activities around the home, children gain a clear understanding that learning is a part of all of life.

In one situation, two parents' use of the COGNET program in the home caused a dramatic change in their daughter.

During the workshop, they received notice from the school that their daughter was being recommended for assessment and probable placement in special education. A meeting date was set for a month later. As the parents discussed their daughter's problems during the workshop, they were given suggestions and encouragement by the Parent

Trainer. These parents begin to use COGNET in the home on a daily basis with their daughter. Prior to the meeting, they received another call from the school. Their daughter had made so much progress at school, that the assessment had been canceled. One parent explained, "It was like a light came on in her head. When she saw that we believed in the Building Blocks and Tools as much as her teacher, she began to believe in their importance, too. Suddenly, she understood her role in learning."

Child care is furnished during the parent workshops. Very few parents drop out of the sessions and most attend monthly support meetings on the suggestion and encouragement of COGNET sponsors.

The COGNET network goes beyond the local community. Support Teachers and Family Service Coordinators members from several schools meet regularly with COGNET sponsor staff. Each practitioner shares his or her successes as well as problems and offers ideas for refining various practices to better meet needs in their community. Sponsor staff facilitate this process while sharing successful methods used in other communities not represented at the meetings. They also guide discussions to assure that the underlying belief system of COGNET is not lost as changes are made--that all adults understand their role in the network as that essential someone, that mediator of reality for children.

COGNET IMPACT ON CHILDREN, TEACHERS AND PARENTS

A recently completed three year study of effects of the COGNET program on low income children demonstrates a significant positive impact of the program. The COGNET children received the program for two and one-half years and were compared to children from similar backgrounds in another school within the same school district. Prior to receiving the COGNET program, children performed as well or better than 36% of children of the same grade

level upon whom the standardized test was normed. At the end of the study they were performing on average as well or better than 64% of children in math and 56% of children in reading. The comparison group merely maintained their level of performance. Significant differences were found between the two groups on the basis of gain scores.

In addition, the children receiving COGNET displayed significantly higher gains on a measure of intrinsic motivation than did the comparison. They also made significantly higher gains on measures of cognitive functioning including asking questions related to a request of performance of a task and being responsive to statements about the process involved in performing a given task.

Additional insight into the specific effects of the program comes from the attention received by a third grade teacher, Greg McGuire, in Ronan, Montana on the Flathead Indian Reservation. Other teachers in his school who were not implementing COGNET at the time, noticed the high level of confidence his students displayed immediately prior to the annual achievement test. These observations were validated when the end of the year achievement test scores reflected that this class scored significantly higher on average than other third grade classes on several parts of the test. Mr. McGuire's class had scored similarly to the others for the several past consecutive years. His only change was to implement COGNET. Perhaps this written comment made by one of his students represents many of those in his class:

"I really liked [the achievement tests]. It was fun! I needed to use Feeling of Challenge and Working Memory....

They really help you in a hard situation. My feelings were a bit out of control, but I used Approach to Task."

Since mediation has everything to do with how material is seen, analyzed, processed, and then used, its success in the classroom is perhaps most dependent upon teacher qualities and characteristics. Greenberg, who spent the early part of her career teaching inner-city, "disadvantaged" children in regular and special education classes, insists on an initial 30-hour teacher workshop. This workshop is spread out over a several month period when possible. On-going training from support staff within the school is essential to success.

Her experience with COGNET taught Greenberg that winning the support of teachers is an essential first goal in implementing the model. In one school where COGNET is used, there is a teacher who is described as a "real success story." This teacher grew from putting down children in her classroom out of sheer frustration at her own inability to reach them, to being the star of the program. "All that teacher needed," explained one of the trainers, "was a handle on what to do when a child has difficulty. And COGNET gave her that."

Greenberg and her staff also found that, before COGNET training, teachers at one school site use a potpourri of child-teacher interaction methods. But after training, the teachers' interaction profiles were characterized by similar strategies which promote higher level thinking. Rather than short product questions dependent on short answers and recalled information, the teachers quickly came to favor process questions designed to get the student to think about why and how a task has to be done.

The untrained teachers routinely allowed children to "co-opt" or take over another child's opportunity for learning by calling out the answer before the target child could respond correctly. The trained teachers also spent more time with kids who gave partial or misguided responses, and they trained their classes to respect each child's opportunity for learning by not blurting out answers.

Trained teachers in this school have also learned with COGNET that I.Q. scores and grades don't mean nearly as much to a child's immediate and future academic success as does well developed methods for learning. Says Greenberg, "We're trying to get the teachers to see that once they know how to help children learn how to learn, then everything they teach is seen in a new light. We want to empower teachers to see there's a way to teach that does not make a classroom a stage for producing right answers, that classroom activities should be developmentally appropriate."

The COGNET impact on parents has been measured to some extent through an extensive interview process with parents at one COGNET school. According to the parents interviewed, COGNET made a helpful impact on their lives as well as on the lives of their children.

COGNET parents stated that the program also helped them understand their children. It helped them work with their children in both school related and home related activities and problems. It also helped them "understand what teachers are doing at school."

These parents reported that they saw changes in their children due to COGNET. "It makes (school) more interesting and she loves

challenges that the teacher gives so well." Parents believed as well that COGNET made teachers better teachers. "I see a difference in the teachers that use COGNET training." Also, according to these parents, COGNET helped them by making support services, such as medical and dental services available.

Parents who were involved in the COGNET Workshops felt that all components of the program were beneficial. They spoke of the success of the workshops and talked about how it changed their understanding of school and their interaction with their children. One parent stated that she wanted the program to continue on indefinitely, stating that she wanted to "continue to learn more until there is nothing else to learn." These believed that "all grades should have it" and that "it should be in every school in the state." They recommended to other parents to "sign up in a minute," and stated that they would tell other parents "it is the most worthwhile time you can spend for your child and yourself."

One parent summed up the parent reactions well, saying that COGNET "brings you to your child's level and shows you how to handle the child's problem without doing it for them. It lets you see your child grow and you grow with them."

In Conclusion

Five year old Willard ran into the room. "I know how it works!," he cried. Kathy Greenberg, who was getting ready to determine why Willard was having so much trouble learning, asked him to explain. "I know how you write the numbers 10 to 20. See, first you write 1 for each number and then you write 1, 2, 3...beside each of the ones." He was glowing from his hard won insight. Dr. Greenberg went on to explain that if he could make those connections, he also knew how to write all the numbers in the 20's, 30's through the 90's. Willard looked doubtful for a moment. But, with only a brief explanation, he was writing all the rest. All of his normal anxiety in

learning situations had disappeared.

Greenberg explains, "One of the deepest needs of all human beings is to sense the excitement of challenge in learning--to make new connections and build new theories. Whenever I have the privilege to observe children having such experiences, I am filled with awe. Every child can have these experiences if we teach them how to learn. Every teacher and parent can participate. It is easy for me to spend countless hours exploring ways to help children become independent learners. Through MLE, mediators are helping children move beyond their present limits in learning. Essentially, we're raising the expectations of everyone in the learning network. In truth, it is in human nature to rise to meet them."